124. Carpet tufted with yarn according to claim 123.

125. Carpet face yarn according to claim 105 having a filament count of about 70 to about 300 filaments per yarn.

126. Carpet face yarn according to claim 124 wherein the yarn is twisted.

127. Carpet tufted with yarn according to claim 126.

REMARKS

Applicants note with appreciation that the same invention double patenting rejection from prior office actions has been withdrawn in the outstanding action and that claims 92-121 have overcome the 35 USC 112 rejections applied in the previous action.

Claims 92 and 105 have been amended to define the claimed yarns as bulked continuous filament yarns, delete the recitation with respect to forms of bulkiness, and recite that the yarns have bulk levels of about 2 to about 20%. Support for these amendments is found in the claims as originally filed with respect to bulked continuous filament yarns, and at page 36 lines 24-25 with respect to bulk levels of about 2 to about 20%. Also, as described at page 37 lines 11-18, bulk levels of about 2 to about 20% are important in bulked continuous filament yarns both for texture for end-uses of the yarns and for achieving Plug Crush Recoveries of at least 85%. The claims as originally filed did not include any recitation as to particular forms of bulk and, therefore, deletion of that recitation from the claims does not constitute new matter.

New claims 122 and 125 are directed to carpet yarn having a filament count of about 70 to about 300 filaments per yarn, as disclosed at page 38 lines 23-24. Claims 123 and 126 are directed to twisted carpet face yarn, as

disclosed at page 24, first full paragraph (in particular lines 7-10) referring to carpet with face yarn twisted at 4.5 twists per inch and, more broadly, at page 54 lines 26-28 describing subjecting textured yarns to other processing steps such as twisting. New claims 124 and 127 are directed to carpets tufted with the twisted yarns of claims 123 and 126, respectively, support being found in the passage of page 24 referred to above and in Example V illustrating a carpet tufted with the twisted BCF yarn prepared in that example. As seen from the examples and from TABLES I and II of the application, twisted yarns according to the invention have desirable Plug Crush Recoveries, and carpets tufted with the twisted yarns showed good results in compressional recovery and walkout tests.

The rejections set forth and discussed in paragraphs 4-8 of the outstanding action are discussed separately below under headings corresponding to those in the action.

Claim Rejections - 35 USC 112 (paragraphs 4-5)

All of claims 92-121 stand rejected as unsupported by the disclosure and directed to new matter by reason of the recitations of forms of bulk in independent claims 92 and 105.

The recitation forming the basis for this rejection has been deleted in the amended claims presented herein, and is not included in the new claims. Therefore, the rejection is moot as to the claims currently pending in the application.

Claim Rejections - 35 USC 103 (paragraphs 6-8)

All claims stand rejected as unpatentable over Wishman under 35 USC 103. Applicants note with appreciation that the rejection based on Wishman for unpatentability under 35 USC 102 set forth in the prior office action has not been repeated.

As discussed in detail below, Wishman does not make obvious the claimed yarns. The claimed yarns are bulked continuous filament yarns with filaments of polypropylene homopolymer or copolymer resin or resin formulations and having recited levels of compressional recovery, bulk, shrinkage and deniers. Compressional recovery of the claimed yarns, determined as Plug Crush Recovery, surpasses that of known yarns and yarns prepared according to known prior art. That property, both alone and in combination with properties such as shrinkage of the yarns and bulk level, distinguishes the yarns from the known prior art including Wishman. Wishman does not disclose bulked continuous filament yarns or any of the yarn properties recited in the claims. The reference also lacks any teaching from which persons skilled in the art would be led to, expect or find inherent or obvious the claimed yarns. Despite broad statements about resilience and improved compressional recovery of polypropylene fibers, a fair interpretation of what Wishman actually describes and conveys to persons skilled in the art is that its compressional recovery and resilience are limited to staple fibers and, even then, it cannot be ascertained whether or to what extent improvements are achieved. Furthermore, in comparative examples in the subject application involving heat treating bulked continuous filament yarns at the heat

treating temperatures disclosed in Wishman, the claimed compressional recovery values were not obtained.

There is also submitted herewith a Declaration of James A. Lamm, with the request that it be entered in the subject application and considered by the Examiner in connection with this response. The Declaration establishes Mr. Lamm's credentials as a person at least ordinarily skilled in the synthetic fibers and yarns art and particularly polypropylene fibers and yarns, his understanding of Wishman, and that he does not consider bulked continuous filament yarns having Plug Crush Recoveries of at least 85% obvious.

Wishman discloses polypropylene fibers that are prepared by melt spinning, drawing, crimping in a particular configuration, and heat treating to permanently set the crimp. The reference characterizes those fibers as "highly resilient" and "useful for carpets and upholstery" (Col. 1 l. 35-38) and as having "improved compression recovery" (Col. 3 l. 53-58) and "compression recovery of at least 250%" (Col. 4 l. 1-9). However, from the reference itself it is clear that those characterizations are made with respect to staple fibers. Wishman's sole example specifically refers to chopping a crimped, heat treated tow of fibers into "staple of about 3.25 inches" (Col. 6 l. 17-24). Staple fibers are short lengths of fiber that typically are used to make nonwoven fabrics, fiberfill and so-called "spun yarns" in which a plurality of staple fibers are twisted together, for example by ring spinning or open end spinning, into yarn. Spun yarn is not continuous filament yarn. Neither staple fiber nor tow is yarn, nor are Wishman's fibers, filaments or tow otherwise referred to as "yarn" in the reference.

In addition to Wishman's only example being limited to staple fiber, the only test disclosed in the reference for measuring compressional recovery is for staple fiber. The test, described in full at Col. 4 l. 42 - Col. 5 l. 20, is introduced as follows:

> "The following is a description of the method used to determine compression recovery of staple fibers."

Wishman continues the description, stating that the first step is to "Card the sample to thoroughly blend and open it" (Col. 4 l. 45-46). While carding may be appropriate for Wishman's staple fiber test, carding a yarn to "thoroughly blend and open" it would alter or destroy a yarn structure, such that subsequent steps would not measure properties of the starting yarn.

Even as to staple fiber, Wishman's compression recovery test is confusing and its results do not indicate whether or to what extent improvements in compression recovery are attained. Although Wishman purports to characterize its fibers in terms of compression recoveries of at least 250% (Col. 4 l. l. 1-9), steps 6, 7 and 9 of the reference's test (Col. 5 l. 5-18) show that Wishman's recoveries are determined from sample height after 24 hours recovery from compression ("A") and an assumed sample height immediately after compression of 0.167 inch ("B"), according to the formula "Percent Compression Recovery = B - A/A x 100." Using that formula, recoveries greater than 100% are not possible because the numerator determined as B-A must be less than denominator B. It follows that the 250% and greater recoveries reported in Wishman cannot be values determined by its reference's test. For all that

can be discerned from the face of the reference, the numbers have no meaning.

It also is significant that compression recovery according to Wishman's test is determined from measurements of recovered height and compressed height of fibers, but with no consideration of initial height. In contrast, as described at page 23 lines 12-20 of the subject application and in the detailed test procedure described at pages 61-67, the Plug Crush Recovery test used for compressional recovery testing of Applicant's yarns measures height after compression recovery and initial height. As discussed in detail and supported in TABLES I and II at pages 23-27 and in Fig.4 of the subject application, the Plug Crush Recovery test is a useful predictor of yarn performance in actual carpet walkout tests. In carpets, matting and clumping of face yarn forming the pile surface due to placement of furniture and foot traffic compress the face yarn. Recovery of compressed areas relative to uncompressed height is important for even and uniform appearance and wear of carpets. Recovery of initial height is not considered in Wishman's comparison of recovered height to compressed height, nor is that comparison an indicator of recovered height relative to initial height. In this regard, reference is also made to the accompanying Declaration of Mr. Lamm, paragraph 8 of which states as follows:

> ". . . the recovered height to compressed height comparison of Wishman's test method is not indicative of the recovered height to initial height comparison used in the Plug Crush Recovery test."

From the above, and from Mr. Lamb's Declaration, it is clear that Wishman's teachings with respect to resilience

and compressional recovery are specific to staple fibers, that even as to staple fibers it is not clear whether or what level of improvement is attained and even then, what Wishman measures is not the same as or indicative of Plug Crush Recovery. Beyond the reference's failure to disclose or even hint at bulked continuous filament yarns with compressional recoveries of 85% according to the Plug Crush Recovery test or the recited shrinkage levels, there is nothing in the reference regarding bulk levels of its fibers or any relationship between bulk levels and resilience or compression recovery, much less the bulk levels recited in Applicants' claims.

The outstanding and past office actions have also asserted that despite a lack of description or teaching in Wishman of properties recited in the claims, those properties are considered by the Examiner to be inherent properties of yarns and would be expected based on the disclosure of Wishman. In particular, general statements in the reference concerning resilience and compressional recovery and asserted similarities in composition, structure or manufacture of Wishman's fibers have been advanced and suggested as bases for inherency and obviousness. Mere assertions of inherency do not, however, support ignoring express teachings of a reference that contradict or are inconsistent the assertions. From the discussion above, and from Mr. Lamm's Declaration, it is clear that Wishman's actual teachings as to staple fiber and properties are not sufficiently close or related to the claimed yarns and properties to support the assertions of inherency or lead to any expectation of inherency by persons skilled in the art.

Lack of obviousness of the claimed yarns based on assertions of inherency in view of Wishman also is supported by Applicants' comparative examples. Wishman's fibers are prepared by melt spinning polypropylene into fiber, drawing the fiber, crimping and heat treating to permanently set crimp. Melt spinning and drawing are described as conventional (Col. 2 l. 42-44; Col. 3 l. 16-28) and crimp is described as a two-dimensional or sawtooth crimp (Col. 3 l. 41-52). Wishman's heat treating is described at Col. 1 l. 1-35 as heating the crimped fibers "at a temperature sufficient and for a residence time sufficient to allow the crimp imparted during the crimping step to be permanently set into the fiber" (Col. 4 l. 1-5). Wishman discloses heating temperatures of 280°F (138°C) up to just below polymer softening temperatures, and preferably 284-315°F (140-157°C) and times generally ranging from about 5 seconds to about 8 minutes, depending on heating equipment and openness of fiber bundles (Col. 4 l. 14-35).

Referring to Comparative Examples 1-4 of the subject application, all involved heat treating, at temperatures within Wishman's preferred temperature range, of polypropylene yarns obtained by melt spinning polypropylene fibers and drawing and texturing yarns or in the form of commercial polypropylene BCF yarns. Times of heating were not within the range disclosed in Wishman, although they were close in some cases (e.g., heating for 1 second with pressurized steam in Comparative Example 1, heating for 10 minutes in an autoclave in Comparative Example 3). As seen from the results in those comparative examples, yarns were either destroyed due to heat exposures (Comparative Example 1) or had Plug Crush Recoveries less than 81% in all cases,

and less than 80% in most. Reference is also made to the accompanying Declaration of Mr. Lamm, which, in paragraph 9 acknowledges that those comparative examples cannot be considered a direct comparison to Wishman because of the different treating times but that, based on results in the comparative examples, he would not expect heating for the times periods described in Wishman to yield bulked continuous filament yarns with Plug Crush Recoveries of at least 85%. In contrast to the comparative examples, in Applicants' examples of the invention, initial heat exposures to condition yarns and then heating at higher temperatures yielded yarns with Plug Crush Recoveries of at least 85%.

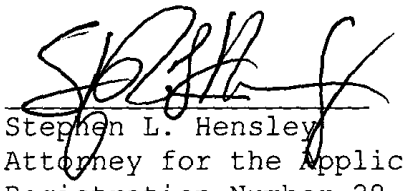
While the comparative examples in the subject application are not directly comparable with Wishman, they are clearly entitled to as much or greater weight with respect to inherency than assertions of general similarities and broad, unsupported claims of resiliency in Wishman. Either alone, or together with the limited nature of what Wishman actually does teach, and what the reference does not disclose or suggest, the claims of the subject application cannot reasonably be considered obvious for simply claiming properties expected to be inherent from Wishman.

In view of the above, the new and amended claims presented herein are not obvious from Wishman. The accompanying Declaration of Mr. Lamb also establishes nonobviousness of the claimed yarns and supports the foregoing discussion.

Conclusion

In view of the amendments made herein, the foregoing reasons for reconsideration of the rejections, and the accompanying Declaration of Mr. Lamb, it is submitted that the subject application is in condition for allowance and such action is respectfully requested.

Respectfully submitted,



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Marked Version of Amended and New Claims

92.Amended) Bulked continuous filament yarn [Yarn] consisting essentially of substantially continuous filaments and having a bulk level of about 2 to about 20% [in the form of at least one of random entanglement, waviness, looping and whirling of filaments], denier of about 500 to about 3000, shrinkage of about 1 to about 15% and Plug Crush Recovery of at least 85%, wherein the filaments consist essentially of crystalline polypropylene homopolymer or crystalline polypropylene homopolymer having incorporated therein at least one additive that is a pigment, process aid, flame retardant, heat stabilizer, light stabilizer, antimicrobial agent, electrically conductive material, antistatic agent or stain resisting agent.

105.(Amended) Bulked continuous filament yarn [Yarn] consisting essentially of substantially continuous filaments and having a bulk level of about 2 to about 20% [in the form of at least one of random entanglement, waviness, looping and whirling of filaments], denier of about 500 to about 3000, shrinkage of about 1 to about 15% and Plug Crush Recovery of at least 85%, wherein the filaments consist essentially of a propylene polymer that is at least one homopolymer polypropylene or copolymer of propylene and at least one copolymerizable monomer, or of a blend of said propylene polymer with at least one other polymer, or of said propylene polymer or blend having incorporated therein at least one additive that is a pigment, process aid, flame retardant, heat stabilizer, light stabilizer, antimicrobial agent, electrically

conductive material, antistatic agent or stain resisting agent.

122.(New) Carpet face yarn according to claim 92 having a filament count of about 70 to about 300 filaments per yarn.

123.(New) Carpet face yarn according to claim 122 wherein the yarn is twisted.

124.(New) Carpet tufted with yarn according to claim 123.

125.(New) Carpet face yarn according to claim 105 having a filament count of about 70 to about 300 filaments per yarn.

126.(New) Carpet face yarn according to claim 124 wherein the yarn is twisted.

127.(New) Carpet tufted with yarn according to claim 126.